Scope of Services

The project consists of replacing three undersized culverts that convey flow to Little Long Pond. Two of the culverts are under Pond Hill Road and the other culvert is under Daniel Carter Road. The Daniel Carter Road culvert discharges Ayers Pond to a drainage swale that extends to one of the culverts under Pond Hill Road and ultimately drains into Little Long Pond. The other Pond Hill Road culvert discharges a wetland into Little Long Pond. The Town of Barrington is submitting the project under the Project Scoping of the FEMA Building Resilient Infrastructure Communities (BRIC) Program.

The purpose of providing this Scope of Services is to provide the engineering tasks and associated fee for input into the BRIC Project Scoping application.

Project Scoping

Consultant shall:

- Condition Evaluation

S-1. Perform a site visit to observe existing conditions and obtain existing data (field measurements, photography, etc.) for the purpose of preparing an Alternative Analysis Report. Layout proposed boring locations and mark surrounding area for Dig-Safe.

S-2. Coordinate subconsultant services for subsurface soil borings and topographic survey. Notification to NHDES and Client will be provided for borings as required by Env-Wq 1406.05.

S-3. Delineate and flag invasive species, wetlands, surface waters and vernal pools within the project limits by a NH Certified Wetland Scientist (CWS).

S-4. Prepare a Request for Project Review (RPR) Form and submit to the New Hampshire Division of Historical Resources (NHDHR) and NHDOT Bureau of Environment, Cultural Resources. Provide information to the NHDOT Cultural Resource Committee CRC as needed for issuance of the Memorandum of Effect.

S-5. Perform a hydrologic and hydraulic analysis to evaluate the existing structures and to size proposed replacement structures.

S-6. Prepare an alternative matrix summary for the Town to consider benefits and impacts of different structure types. The alternative matrix will include conceptual cost estimates for each alternative evaluated.

S-7. Perform a database search of the New Hampshire Natural Heritage Bureau (NHNHB) Online Datacheck Tool for the presence of any known rare species and exemplary natural communities, and of the US Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) for federally listed species in the vicinity of the project site.

S-8. Perform a database search of the New Hampshire Department of Environmental Services (NHDES) OneStop Data Geographic Information for presence of known hazardous waste sites in the vicinity of the project.

S-9. Prepare conceptual plan and elevation for the proposed project.

S-10. Prepare one Estimate of Probable Construction Costs for the proposed project.

S-11. Attend one Selectboard meeting to review initial recommendations and solicit input.

S-12. Prepare a brief Scoping Report summarizing the hydraulic findings, existing condition assessments, and cost estimate for the recommended project, for submission to Client for review and approval. The conceptual plan and elevation for the proposed project will be included with the Scoping Report.

- Benefit Cost Analysis

S-13. Utilize FEMA software v6.0 to prepare a BCA in a format conforming to FEMA requirements to support a Building Resilient Infrastructure & Communities (BRIC) application.

S-14. Meet with the Town to review BCA and remaining application efforts to determine if the project is eligible for a 2022 BRIC submission for final design and construction.

Assumptions

Consultant assumes:

A-1. Hoyle, Tanner will arrange for a soil boring firm to take the necessary borings at the site. We intend to use Northern Test Boring, Inc. from Gorham, ME for these services. The cost for these services is included in our fees indicated in Exhibit C; the estimated fee is based on recent projects Hoyle, Tanner has completed with Northern Test Boring, Inc.

A-2. Hoyle, Tanner will arrange for a Town of Barrington police detail for traffic control during subsurface exploration. It is assumed that one officer with cruiser will be required for two – 8 hour days, for a total of 16 hours for completion of this work. The cost for these services is included in the fee summary in Exhibit C.

A-3. Hoyle, Tanner will arrange for a survey firm to perform a topographic survey and record the wetland delineation and invasive species flagging placed on site by Hoyle Tanner staff. We intend to use Doucet Survey, Inc. from Newmarket, NH for these services. The cost for these services is included in our fees indicated in Exhibit C; the estimated fee is based on recent projects Hoyle, Tanner has completed with Doucet Survey, Inc.

A-4. At this time, the services of a historical resources and archaeological resources subconsultant are not included in this proposal. Depending upon the outcome and the requirements of our initial NHDHR Request for Project Review, a fee amendment may be submitted to engage these subconsultants and for attendance at further meetings.

A-5. One horizontal alignment will be considered that matches existing conditions of Daniel Carter Road and Pond Hill Road. Two vertical alignments will be considered; one that matches existing conditions for each road and one that raises the profile to mitigate potential flooding conditions at each culvert location.

A-6. It is assumed existing stormwater flow patterns will be maintained along Pond Hill Road. The drainage swale that runs parallel with Daniel Carter Road will be reconstructed. Existing side

slopes and ditch lines will be stabilized to minimize erosion in the project area.

A-7. A Guardrail layout meeting AASHTO Roadside Design criteria will be evaluated, and if necessary, presented in the Scoping Study.

A-8. AASHTO – Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT< 2000), 2019 design criteria will be utilized, as best practicable, for roadway geometry improvements. Improvements are envisioned to be limited to 1,000' along Pond Hill Road and 500' along Daniel Carter Road. Other roadway design elements will be designed to meet current AASHTO design criteria for the chosen design speed as practicable including guardrail, sight distance, road box design, roadway cross slopes, and drainage.

A-9. The Daniel Carter Road culvert is assumed to be replaced with a 10' span by 4' rise precast concrete structure. The Pond Hill Road culvert discharging into Little Long Pond is assumed to be replaced with a 10' span by 4' rise precast concrete bridge, and the culvert discharging the wetland is assumed to be replaced with a 36" culvert.

A-10. CADD drawings to be included in the Scoping Study include a Typical Section for each structure, and a General Plan and Elevation of the proposed project.

A-11. A hydrologic/hydraulic analysis will be completed using streamflow information obtained from the USGS Streamstats web based program. This analysis will be utilized to determine the 50-year and 100-year flood events elevations to ensure a minimum of 1' of freeboard is provided at the 50-year flood event for the two NHDOT defined bridges as required by NHDOT and to accommodate the 100-year flood event as required by NHDES.

A-12. A two-dimensional hydraulic analysis will be completed utilizing SRH 2D SMS software. The model will include all three road crossings to evaluate how they impact the drainage area and Little Long Pond outfall. The modeling will utilize available LiDAR information merged with the topographic survey, as necessary.

A-13. Hoyle, Tanner will search the databases listed below for the presence of any known rare species, exemplary natural communities, federally listed species and presence of any hazardous sites near the project site in the vicinity of the project site. The purpose of this search is to identify if the proposed project will impact hazardous sites, rare species and/or natural communities.

- New Hampshire Natural Heritage Bureau (NHNHB) Online Datacheck Tool
- US Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC)
- New Hampshire Department of Environmental Services (NHDES) OneStop Data Geographic Information

A-14. The necessary tasks will be performed in order to evaluate conformance with the NHDES Stream Crossing Guidelines, including necessary upstream topographic cross-sections, identification of bank vegetation and summarization of this information in the wetlands permit application.

A-15. Utility conflicts will be identified within the project area to facilitate construction. Utility coordination and design is not part of the Scoping Study.

A-16. Hoyle, Tanner will utilize software provided by FEMA for the Benefit Cost Analysis preparation.

The current version of the software is 6.0.

A-17. Final engineering design (including contract documents; plans and specifications), bidding and construction phase services, such as advertising the project for bids, reviewing bids received, shop drawing review and periodic site observations or resident engineering services, are not included in this Proposal. We will submit a Proposal to the Town for these services if requested after the Scoping Study services are complete and a preferred alternative has been selected.

Compensation for Services

Client shall pay Consultant for services set forth in the Scope of Services as follows:

Lump Sum Method of Payment

Scoping Study (S-1 through S-14)	$	50,405	
Total Compensation	$	50,405	Lump Sum

Consultant shall notify Client if the scope of services changes to the extent that the compensation needs to be adjusted and, if needed, negotiate an appropriate fee adjustment with Client.

Lump sum amounts include compensation for the Consultant's services and the services of the Consultant's subconsultants unless subconsultant fees are specifically identified as separate.

Reimbursable expenses such as transportation, postage, telephone, fax, printing and rental equipment are included in the lump sum amounts unless specifically estimated and identified as separate compensation.

Consultant shall bill Client based on the Consultant's estimate of the percentage of the services completed

BILLING RATE ESTIMATE

CLIENT: Town of Barrington, NH
PROJECT: Pond Hill Road BRIC Project Scoping
PROJECT #: TBD
DATE: November 2020

Calc. By: JAS
Check By:

SCOPING STUDY

TASK DESCRIPTIONS	HOURS BY BILLING RATE CLASSIFICATION ($/Hour)						TOTAL HOURS	TOTAL BILLING RATE COSTS
	PROJECT MANAGER II $173.00	SENIOR ENGINEER I $133.00	ENGINEER II $115.00	ENVIRONMENTAL COORDINATOR III $145.00	ENVIRONMENTAL COORDINATOR I $98.00	SENIOR CADD TECHNICIAN $125.00		
PROJECT SCOPING								
S-1. Perform Site Visit		6	6				12	$1,488.00
S-2. Coordinate Subconsultant Services		4					4	$532.00
S-3. Delineate Resource Areas				2	8		10	$1,074.00
S-4. Prepare a Request for Project Review Form		2		2	4		8	$948.00
S-5. Perform Hydrologic and Hydraulic Analysis		24	56				80	$9,632.00
S-6. Prepare Alternative Matrix Summary								
Daniel Carter Road Precast Bridge		4	8				12	$1,452.00
Pond Hill Road Precast Bridge		4	8				12	$1,452.00
Pond Hill Road 36" Culvert		2	4				6	$726.00
Roadway Design		8	16				24	$2,904.00
QA/QC	8						8	$1,384.00
S-7. Perform NHNHB/USFWS/IPaC Database Search				1	2		3	$341.00
S-8. Perform OneStop Database Search				1	2		3	$341.00
S-9. Prepare Conceptaul Bridge Plan and Elevation	1	2	8			24	35	$4,359.00
S-10. Prepare Estimate of Probable Construction Costs		8	16				24	$2,904.00
S-11. Attend Selectboard Meeting (Virtual)	2	2					4	$612.00
S-12. Prepare Brief Scoping Report	4	8					12	$1,756.00
BENEFIT COST ANALYSIS								
S-13. Prepare Beneift Cost Analysis	4	12					16	$2,288.00
S-14. Meet with Town to review BCA (Virtual)	2	2					4	$612.00
TOTAL LABOR HOURS	21	88	122	6	16	24	277	
TOTAL BILLING RATE COSTS	$3,633.00	$11,704.00	$14,030.00	$870.00	$1,568.00	$3,000.00		$34,805.00

REIMBURSABLE EXPENSES:

TRAVEL- MILEAGE, ETC.	$100
POSTAGE & COMMUNICATION	$0
PRINTING	$0
LODGING AND MEALS	$0
CONSUMABLES	$0
TESTING EQUIPMENT RENTAL	$0
Other	$0
SUBTOTAL:	$100

SUBCONSULTANTS:

Soil Borings	$8,000
Traffic Control for Soil Borings	$1,500
Topographic Survey	$6,000
(SUBCONSULTANT)	$0
(SUBCONSULTANT)	$0
SUBTOTAL:	$15,500

TOTAL BILLING RATE COSTS		$34,805
SUBCONSULTANTS:		
includes admin. Fee of	0%	$15,500
SUBTOTAL BILLING RATE COSTS, SUBCONSULTANTS:		$50,305
REIMBURSABLE EXPENSES:		
includes admin. fee of	0%	$100
TOTAL:		**$50,405**

Hoyle, Tanner & Associates, Inc.

Revised 7/17